

REPORT
ON THE
Government Horticultural Gardens,
LUCKNOW,
FOR THE
YEAR ENDING 31ST MARCH 1909



ALLAHABAD:
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FROM

THE DIRECTOR OF LAND RECORDS AND AGRICULTURE,
UNITED PROVINCES,

TO

THE SECRETARY TO GOVERNMENT,
UNITED PROVINCES, INDUSTRIES DEPARTMENT,
NAINI TAL.

Dated Lucknow, the 31st May 1909.

SIR,

I HAVE the honour to submit for the orders of Government the report on the Government Horticultural Gardens at Lucknow for the year ending 31st March 1909. The progress made during the year reflects much credit on the Superintendent, Mr. H. J. Davies, who has been in charge throughout.

2. Acknowledgements are due to the donors mentioned in appendix B of the report.

I have the honour to be,

SIR,

Your most obedient servant,

W. H. MORELAND,
Director.

Maximum limit of report—seven pages.]

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**REPORT on the GOVERNMENT HORTICULTURAL GARDENS,
LUCKNOW, for the year ending 31st March 1909.**

I.—INTRODUCTORY.

1. *Charge of the gardens.*—I held charge of the gardens throughout the year under report. I also held charge of the Kumaun Government gardens up to the 22nd March 1909, when Mr. Gill was appointed to the post as Superintendent.

Visits of inspection were made by me to the Circuit House Gardens at Bareilly.

2. *Important Administrative events.*—Mr. W. Head probationer gardener was, in April 1908, deputed to Fyzabad to act as Superintendent of those gardens. He rejoined his post in these gardens on the 16th December 1908, where he remained until the 19th March when he was permanently appointed to the post of Superintendent, Fyzabad gardens.

Some marked changes in the administration of the garden will come into force during the coming year. The chief among them is, without doubt, the decision of Government to discontinue the sale of imported vegetable and flower seeds, it being wisely considered that the time has arrived to make over this branch of the gardens labours to private enterprise and to devote more time to acclimatisation and experimental work. The flower seeds produced by the gardens are in many ways better than imported seed, the chief advantages being the fact that the plants come into flower some weeks earlier and produce a greater abundance of bloom true to colour description.

Other changes, tending to eliminate the cultivation for sale of various sections of plants of an ornamental nature so as to avoid competition with nursery-men who grow these plants in large quantities for sale to the public, will be made as soon as it is seen that the supply from private growers is equal to meeting the demand and is up to the proper standard.

In future greater energy will be centred in the introduction of new plants of economic value, whilst not forgetting the demands of horticulture for plants of an ornamental nature, specially winter flowering annuals, shrubs and roses.

3. *State of the gardens* :—Many useful improvements were carried out in the gardens during the year with the object of bringing them up to date as regards the ever-increasing requirements of horticulture and to add to their attractiveness.

The flower garden was further enlarged owing to the increasing demand for acclimatised seed.

The colour effects produced by the grouping together of large masses of bright-coloured annuals is a distinct feature of the gardens during the cold weather months and reminds one of the trial grounds in large seed-men's nurseries in England and on the continent.

A new system of growing various gourds was practised, the span roofed structure on which the vines are usually cultivated being used for the purpose. The results were in every way satisfactory as double the quantity of seed was collected compared with previous years and the effect of seeing a large number of various shaped gourds hanging from a roof was of more than passing interest.

The lily garden formed one of the most instructive features of the gardens during the cold season. In my last report I mentioned that a plot of land had been set apart specially for bulbous plants. The results were most encouraging, many of the subjects succeeding beyond all expectations.

Hyacinths in variety, narcissus, iris and many other bulbs bloomed freely and proved beyond doubt that their cultivation on the open ground was easy and profitable.

The rose garden was considerably enlarged. A new stock plant nursery was established in which specimens of every rose mentioned in the garden lists are planted according to their consecutive numbers, also all the newly introduced varieties, which will, as soon as a stock has been worked up, be included in the lists.

The rose garden is now thoroughly well stocked with young and healthy plants, and our efforts in the future will be mainly confined to the introduction of new varieties and their propagation.

The young trees in the new exotic garden made excellent growth during the year under report. Many of the dwarf subjects have already flowered and seed has been collected for distribution and sowing.

I look forward with great interest to the fuller development of this section of the work of the garden.

A new glass house has been erected for the propagation of tender plants, raising of young seedlings which require an equable temperature in the early stages of their growth, and for testing the germinating powers of all the acclimatised seed before being sold or distributed to the public. This plant house has been a long-felt want in the gardens for some years past, and will enable us to prosecute experiments which were hitherto impossible, owing to the want of necessary facilities.

The replanting of the citrus groves was taken in hand. The gardens possess a fairly representative collection of good types of oranges, limes and lemons, but they were in need of better cultivation to enable them to produce sufficient suitable wood for propagation.

The assistance given to the trees should in future ensure a good supply of such material and enable the gardens to cope with the increasing demand for young grafted or budded plants. The work of the garden was considerably interfered with during the months of September and October by the presence among the garden staff of a very malignant type of fever which attacked practically every member and to such a degree that for the greater portion of the period mentioned only about one-third were able to work on any particular day.

The fever came at a time when all the seed sowing was in progress for the ensuing cold season and it was with the greatest difficulty that the work was carried out.

4. *Character of the season.*—The rainfall for the year as registered by the local meteorological office was 36.75 inches. This amount must be considered in every way satisfactory, especially as it was well distributed over a fairly long period, and enabled the gardens to propagate a large stock of those trees and shrubs which only flourish when the air is well saturated with moisture.

Frost did little damage in the gardens. A few tender annuals suffered to some extent, but not sufficient to prevent them making a speedy recovery when the weather became warmer in March. The absence of frost, which usually does much harm in the propagating nurseries, should augur well for the coming season, as the trees are full of vigor and will be able to stand the harsh treatment they are usually submitted to for the sake of their young wood.

II.—ACCLIMATISATION AND OTHER EXPERIMENTAL WORK.

5. *Fruit and food producing trees.*—The report in future years should, under this heading, contain much more interesting and useful knowledge than has hitherto been shown.

Government has decided that the gardens shall devote more attention to acclimatisation and experimental work, and the energy and outlay of money previously spent on cultivating trees and plants for the sake of their fruit, which was sold to the public, shall be discontinued. The land now occupied by mature fruit trees will, in the course of time be available for other purposes and as this land is situated in the best parts of the garden where the soil is good and water abundant, experiments taken in hand will have every advantage.

Pears.—The results of the experiments made in 1906-07 have not proved conclusively which treatment is necessary to ensure a regular and abundant crop of fruit in Lucknow. Our trees have without doubt benefited by root pruning but not in such a marked manner as to warrant a definite conclusion that the treatment is one to be widely recommended at present. From observations made by me in other plains stations in these provinces it appears that the best results are obtained by allowing the young trees to grow at will without any special system of pruning, removing only superfluous branches to balance the tree, and let in sufficient light and air to mature the growth. This system is practised in Europe with apples and other fruit trees with excellent results.

• The trees are longer in coming into full bearing but the delay is compensated by a much heavier crop when once the trees have ceased to make rank growth and form fruiting spurs.

Pine apples.—This fruit has not been grown in the gardens in the past with much success, due no doubt to the fact that the plants received little assistance in the matter of cultivation and were left to take care of themselves.

During the past year, about one-third of an acre was planted with selected varieties collected locally.

The land set apart for them was the ordinary cultivated soil of the gardens, with mango trees for shade. The plants were liberally supplied with water during the dry season. The results so far are promising and in my next report I hope to be able to show that the pine apple can be grown in Lucknow with success. There is a big demand for this fruit in the local markets but the supply is usually met from out-stations often at a great distance.

Arabian Dates.—For reasons, probably due to the trees having borne so heavily during the previous year, only a small number of date trees fruited in the year under report.

Again, the fruit that was produced failed to ripen before the rains set in and was destroyed. The prospects for the coming year are poor, as scarcely any of the trees have flowered.

6. *Other trees and plants of economic value. Manihot.*—Seeds of two species of this rubber producing plant were received from the Royal Gardens, Kew, for sowing and reporting on hereafter as to their suitability for growing in these provinces.

The seeds germinated freely and healthy young plants have been reared, which will, as soon as they are strong enough, be planted out in various parts of the gardens and kept under observation.

The names of the *Manihot* are *M. dichotoma* and *M. pumiliensis* and according to the Kew Bulletin they can be tapped in their third or fourth year.

III.—FINANCIAL RESULTS.

7. *Receipts.*—The actual receipts of the garden were not as large as they were estimated to be, though they showed an improvement over those of last year.

The fruit tree orchards which formerly existed and which were done away with to allow of the land being used for other purposes, were a source of considerable revenue in past years. The sale of fruit has now been discontinued as also the sale of vegetables, and the receipts have fallen in proportion. The receipts of the year under report may be taken as a fair index to what we may expect the revenue to be for the next two or three years. The discontinuance of the sale of imported seed will affect the receipts, but not to any great degree as we hope to cover any loss in this direction by the increased sale of acclimatised seed.

The demand for plants was in excess of last year the distribution list showing a total of 63,523. Of this number 16,099 represented ornamental trees and shrubs, 25,410 bulbous and tuberous plants and the remainder fruit trees. The shrub nurseries are well stocked with a representative collection of plants, the number at present available for distribution being well over 50,000.

The fruit nurseries contain a good selection of young trees, especially mangoes, while the pot section has increased rapidly and completely fills the nursery allotted to it.

Seeds.—The total number of packets of seeds distributed during the past year amount to 10,553 with a weight of 2,219 lbs. 12 ozs. The coming season should show even better results as a very large quantity of acclimatised seed has been collected which we hope to dispose of direct from the gardens or by agents. The climate and soil of Lucknow is especially adapted to the raising of acclimatised seed. Reports from various places in India especially Calcutta, show nothing but praise for the gardens seed and the indents already received for next cold season are indicative of the demand there will be when the season arrives for sowing.

Agave sisalana.—The demand for young plants of this *Agave* still continues to increase. Rather more than 20,000 were supplied but this number was not nearly sufficient to meet the demand. Our old plants only supply a certain quantity of bulbils annually and the supply will not increase until the plants in the new nursery come into flower. They are fine healthy plants and should bloom well within the next two years when our stock can be considerably increased.

See appendix A.

The receipts of the garden were estimated at Rs. 22,000 while the actual receipts were Rs. 16,402. Plants, seeds, cut flowers etc. were issued free and at reduced rates to the value of Rs. 6,220 and if these book receipts be taken into account and added to the actual receipts the total revenue for the year amounts to Rs. 22,622 an increase of Rs. 1,410 over the figures of last year.

See appendix A.

8. *Expenditure.* The estimated expenditure of the gardens was Rs. 29,600 while the actual expenditure came to Rs. 28,927.

The balance was transferred to the Kumaun gardens budget under G. O. No. $\frac{855}{X-2401}$ dated 23rd March 1909.

9. *Surplus or deficit.*—The total receipts as compared with the expenditure show a deficit of Rs. 6,305 and if only cash receipts paid into the treasury are shown and book credits excluded, the deficit amounts to Rs. 12,525.

IV.—MISCELLANEOUS.

10. *Training of gardeners.*—There were thirty-five applications for gardeners during the past year, out of which only about one-fourth could be complied with for various reasons, which have been mentioned in previous reports.

The newly-formed Choudhry class will, in the course of time, furnish a flow of good men from the gardens. The applicants in many cases offer a liberal wage but a large number are unwilling to pay more than from Rs. 10 to Rs. 15 a month. To meet the demand for the latter class a general uplifting of the ordinary mali is necessary. His knowledge of gardening is generally sufficient to enable him to cultivate flowers and vegetables with a very fair amount of success and he knows the uses of the plants he grows, but beyond this it is impossible for him to travel. Names to him are conundrums and the diseases of plants are treated as natural pains and penalties, and are allowed to do their destructive work without any measures being taken to check or eradicate them. He must be taught to reason with himself, and with that object in view, we ought to help him by regular instruction in the vernacular, to think more of his profession and live beyond his ideal of merely earning a living wage in the easiest possible way.

Training classes in all branches of horticulture will in future, be a feature in the work of the gardens. Much has already been done in this direction but a greater effort is needed to keep pace with the requirements of these provinces.

The Choudhry class already existing is full of promise the members of it showing a ready desire to benefit by the training they receive.

11. *Arboriculture.*—An arboricultural class was held in the past year consisting of ten young men. The instruction imparted to them was of such a nature as to enable them to thoroughly grasp the essential points in the supervision of road-side avenues and groves. An examination held by me at the end of a five months' course resulted in all the students passing the test.

The stock of young plants in the nursery more than met the requirements for road-side planting during the year. Nearly 5,000 healthy trees were distributed, chiefly mango, bargad, jamun, sisso, pakar, tamarind and neem. Our present stock of 2 and 3 year old trees number about 20,000 whilst we also have large numbers of seedlings in various stages of growth.

The allotment for maintenance of the nursery was Rs. 1,280 out of which Rs. 820 was spent.

Subscribers.—The names of nine members still remain on the books as subscribers, there being no changes since my last report.

12. *Flower shows.*—The annual Flower and vegetable show was held in the Wingfield Park on the 27th February 1909. The venue was changed from the old site in the centre of the park to that of the spacious well-kept lawns in the flower garden surrounding the Baradari.

The change was greatly appreciated and went a long way towards making the show the undoubted success it was and set off the exhibits to greater advantage.

The exhibits staged were well up to the standard of former years, the vegetable section showing a distinct advance in cultural skill.

The receipts amounted to Rs. 788, the greater portion of this representing public subscription.

The expenditure was Rs. 872 the balance being met from money at the credit of the Flower show account, at the Bank of Bengal.

No chrysanthemum show was held, as sufficient funds were not available for the purpose.

13. *Conclusion.*—My thanks are due to Mr. Head for the able assistance I received from him during the short time he was attached to the gardens.

The office and garden staffs rendered me much assistance, especially during the period previously mentioned when fever played such havoc among them.

H. J. DAVIES,
Supdt., Govt. Horticultural Gardens,
Lucknow.

APPENDIX A.—(See report paragraphs 7 and 8).

Statement showing the receipts and the expenditure of the Government Horticultural Gardens, Lucknow, for the year ending 31st March 1909.

Heads.	Actuals. of 1907-8.	Budget for 1908-9.	Actuals of 1908-9.
1	2	3	4
	Rs.	Rs.	Rs.
Receipts	15,732	22,000	16,402
Total receipts	15,732	22,000	16,402
CHARGES.			
Superintendent	4,233	4,920	3,003
Establishment	7,231	9,631	8,068
Allowances	459	300	579
SUPPLIES AND SERVICES.			
Purchase of seeds and plants	5,511	4,500	4,449
" of live stock	517	600	...
Feed of live stock	2,325	2,300	3,117
Purchase of manure... ..	...	500	558
Rent of land	24	24	24
Maintenance of premises	520	1,000	3,448
Cooly labour	2,502	2,500	1,912
Contingencies	8,177	3,325	3,769
Total	31,499	29,600	28,927

APPENDIX B.

List of contributors to the garden during the year ending 31st March 1909.

Name of contributors.	Name and description of articles contributed.
The Director, Royal Botanic Gardens, Kew, England. {	1,000 <i>Manihot dichotoma</i> seeds.
	1,000 " <i>puanhyensis</i> "
The Superintendent, Royal Botanic Gardens, Sibpur, Calcutta. {	19 packets shrubs and palms "
	1 " <i>cinnamomum zuzlanicum</i> .
The Superintendent, Government Gardens, Allahabad.	1 lb. <i>Swietenia Mahogani</i> seeds.
	1 lb. Castor oil "
	4 oz <i>Cupressus Goveniana</i> "
The Superintendent, Government Gardens, Ootacamund. {	4 oz " <i>sempervirens</i> "
	4 oz " <i>macrocarpa varglanca</i> "
	3 oz " <i>Knigtiana</i> "
	46 packets shrubs etc "
The Superintendent, Viceregal Gardens, Simla	1 " <i>Stephanotis floribunda</i> "
The Superintendent, Government A. H. Gardens, Lahore, Punjab.	1 " <i>Magnolia grandiflora</i> "
The Superindendent, A. H. S. Gardens, Kan-dawgley, Rangoon. {	1 " <i>Sabal palmetto</i> "
	1 " <i>Areca triandra</i> "
G. A. Gammie Esq., F. L. S., Poona ...	1 " <i>Asclepias semilunata</i> "
C. M. W. King Esq., C. S., Lucknow ...	3 " trees and shrubs "
R. Gill Esq., Tremaugh Gardens, Penryn, England.	5 " " " " "
T. Valerio Esq., Naini Tal ...	15 " vegetable "
Botanical Department, Trinidad ...	1 " <i>Funtumia elastica</i> "
T. H. Brunning Esq., Victoria Nurseries, Melbourne Australia.	6 " flower "
Principal, Agricultural College, Cawnpore...	1 " <i>Manihot puanyensis</i> "

APPENDIX C.—(See report, paragraph 7).

Showing the amount of plants and seeds distributed from the gardens during the year ending 31st March 1909.

Names of departments, &c., supplied.	Plants.								Seeds.				Total.			
	Fruits.			Ornamental and timber trees.		Ornamental plants and shrubs.			Total.	Vege- tables.	Flowers.	Fruits.	Trees and shrubs.	Miscel- laneous.	Number of packets.	Weight. lb. oz.
	Plants.	Cuttings.	Straw- berries.	Plants.	Cut- tings.	Plants.	Cut- tings.									
General public ...	3,196	...	2,150	10,589	...	14,559	4,089	24,520	59,103	3,982	5,121	...	169	39	9,311	1,957 12
Government and public gar- dens in India.	379	...	...	1,310	...	1,244	...	890	3,823	316	632	...	20	22	990	184 14
Government and public gar- dens in other countries.	...	...	...	...	...	...	...	...	...	14	...	...	...	...	14	18 2
Jails	301	...	...	...	...	296	...	...	597	78	145	...	15	...	238	59 0
Total	3,876	...	2,150	11,899	...	16,099	4,089	25,410	63,523	4,390	5,898	...	204	61	10,553	2,219 12